

Pearl millet

Common name: Bajra

Botanical name: *Pennisetum glaucum* L.

Pearl millet is important forage of tropical climate grown over a wide range of soils. It is nutritious and palatable and can be fed as green, dry or as conserved fodder in the form of silage or hay. On an average it contains 7-10 % crude protein, 56-64 %, neutral detergent fibre, 38-41 % acid detergent fibre, 33-34 % cellulose and 18-23 % hemi cellulose on dry matter basis when harvested at 50 % flowering stage. It survives well in condition of soil moisture stress as well as water logging and performs better than sorghum.



Soil and its preparation

Well-drained sandy loam to loam soils with a pH range of 6.5 to 7.5 are ideally suited for its growth. The crop does not tolerate soil acidity. The field should be thoroughly prepared and leveled for weeds free sowing. The crop stand and growth is obtained better on well-prepared soils. One ploughing followed by two (crosswise) harrowing and planking are sufficient to get a good seed bed. The crop can't tolerate longer water stagnation hence, good drainage facility is important.

Varieties

| Varieties | Areas of cultivation | Green (t/ha) | Fodder |
|-----------------------|----------------------------|--------------|--------|
| Single cut | | | |
| Raj Bajra Chari-2 | Entire bajra growing tract | 35-40 | |
| CO-8 | All India | 35-50 | |
| APFB-2 | Andhra Pradesh | 30-40 | |
| GFB-1 | Gujarat | 30-40 | |
| NDFB-2 | North-East Zone | 35-40 | |
| Dual Purpose | | | |
| Avika bajra-1 | Central India | 35-40 | |
| Multicut types | | | |
| Giant bajra | All India | 55-100 | |
| Pro agro No. 1 | All India | 65-95 | |

Sowing time

For summer sowing, March to mid April is the best period. Monsoon season crop should be sown preferably during first fortnight of July after commencement of rains. In southern India, it is grown

during *rabi* season and sowing is done in October-November but it is not popular crop in southern India.

Seed rate and sowing method

Sowing should be done in lines at distance of 25 cm row to row using a seed rate of 10-12 kg/ha. Being small seeded crop, its seeds should not be placed more than 1.5-2.0 cm deep. The seed should be treated with Agrosan GN or Thiram @ 3.0 gm/kg seed before sowing to control seed borne pathogens.

Intercropping

Forage pearl millet is grown in association with guar, cowpea and lablab in semi-arid to arid areas. The intercropping of pearl millet + cowpea in 1:1 row ratio has been found superior in most of the growing situations.



Cropping systems

| Promising cropping system | Green fodder yield (t/ha) |
|--|---------------------------|
| Eastern Region | |
| Pearl millet + Cowpea – Maize + Cowpea – Oats (Sub humid red acidic soils) | 102 |
| Northern Region | |
| Pearl millet + Cowpea (Rainfed) | 35 |
| Pearl millet + Cowpea - Berseem (Irrigated) | 115 |
| Central and Western Region | |
| Pearl millet + Cowpea – mustard (Rainfed) | 40 |
| Pearl millet + Cowpea – Berseem – Sorghum + Cowpea (Irrigated) | 145 |

Nutrient management

Application of 10 t FYM/ha to the crop meet requirement of secondary & micro nutrients. Basal application of 50:30:30 kg N: P₂O₅: K₂O/ha should be given at sowing time followed by top dressing with 30kg N/ha one month after sowing time. In rainfed situation, 20-30 kg N/ha may be applied coinciding with rain at 30-35 day stage. If dry spell prevail spraying of 2 % urea solution should be done for quicker biomass production. Azospirillum treated seed improves the yield and requires 15-20 % lesser N fertilizer.

Water management

July sown rainy season crop may also need 1-2 irrigations depending upon distribution of rains. For summer sown crop 4-5 irrigations are required due to high evaporative demand. In southern region *Rabi* season crops needs about 4 irrigations.

Weed management

One hoeing through weeder cum mulcher at critical crop stage i.e. 3-4 weeks is very effective to control the weeds. Use of herbicide like atrazine @ 0.50 kg a.i. /ha as pre-emergence in 600 litres of water controls the weeds effectively. This should be applied only in pure crop of pearl millet. In intercropping of pearl millet with cowpea or guar, pre emergence spraying of alachlor @ 1.0 kg a.i. /ha should be done.

Disease and insect-pest management

Pearl millet is attacked by number of insects & disease pathogens. Ergot, downy mildew and smut are most common diseases. In forage pearl millet dependence on chemicals for control of insect-pest and diseases is not preferred. Hence, seed dressing with Metalaxyl @ 2.0 g/kg seeds or spray of Ridomil @1000 ppm is considered as effective control method. Shoot fly is the common insect attacking the pearl millet, which can be controlled with spray of Carbofuran @ 125 ml per hectare. Clean cultivation and seed treatment are adopted for reducing the damage from insect-pest and diseases in forage pearl millet.

Harvesting management

Harvesting of single cut varieties is to be done at 55 - 60 days after sowing (initiation of flowering). Whereas in case of multicut varieties, first cut at 40-45 days after sowing and subsequent cut at 30 days of intervals.